

Figure 1

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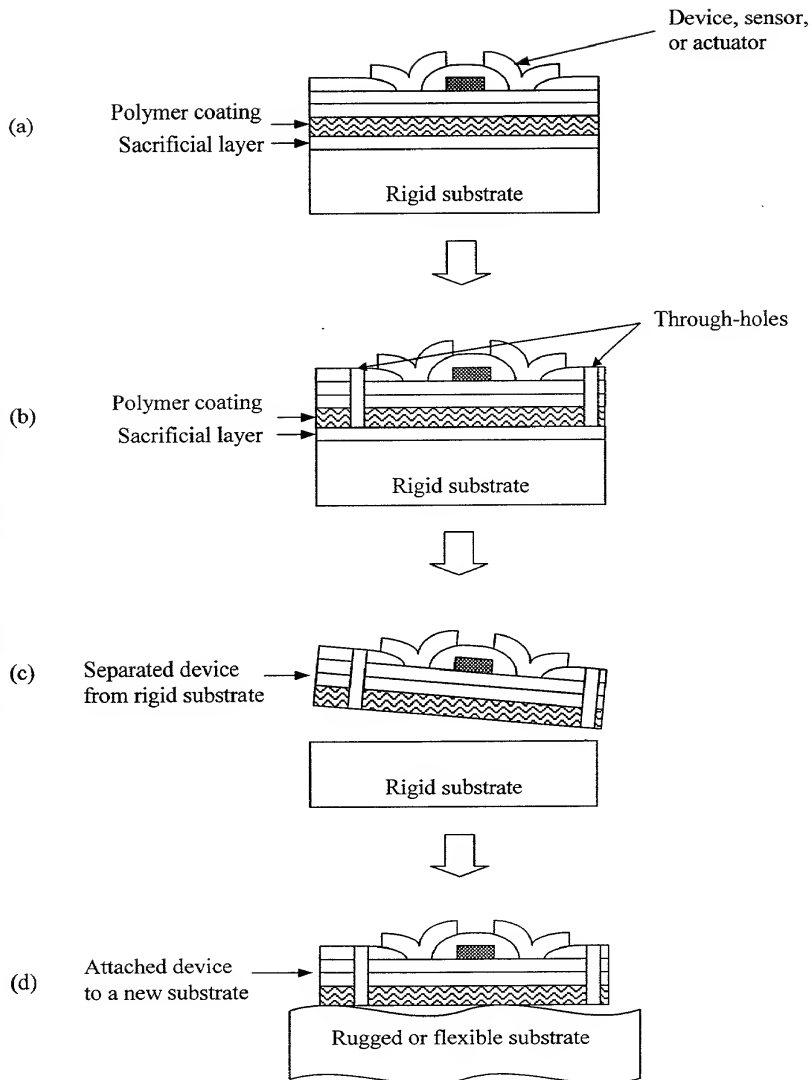


Figure 2

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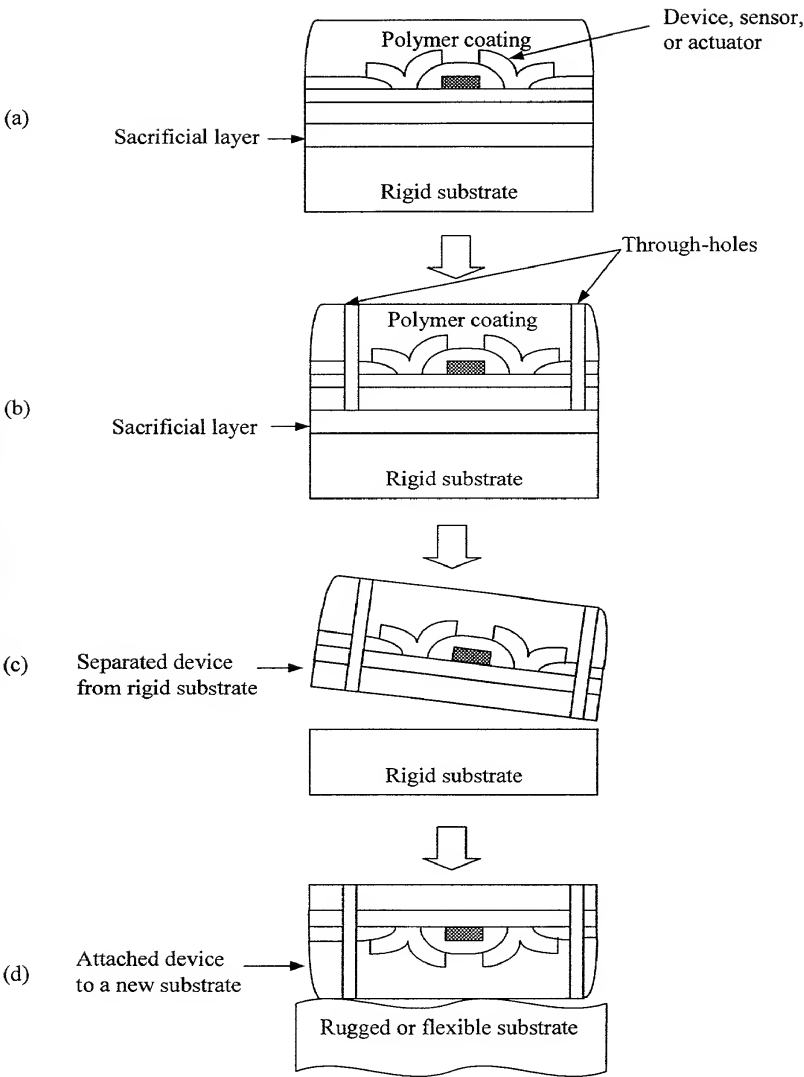


Figure 3

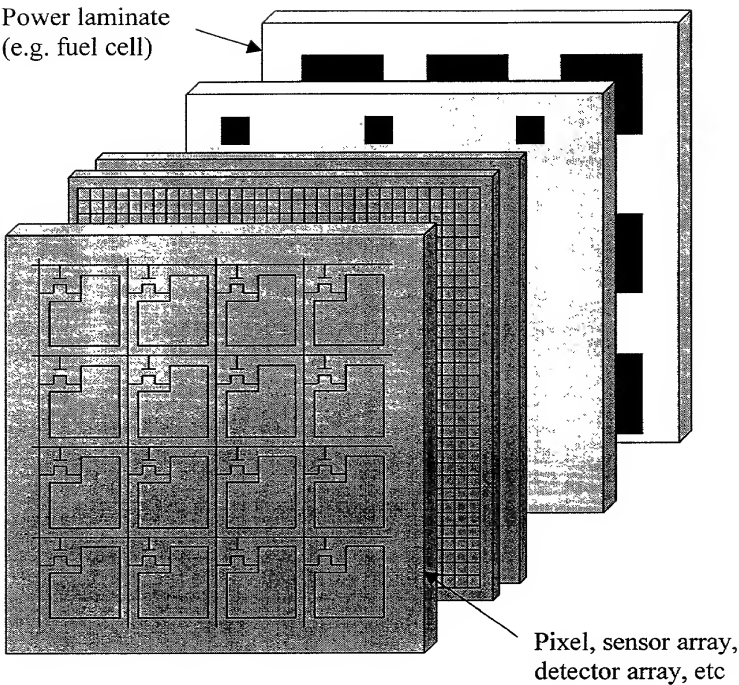
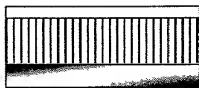


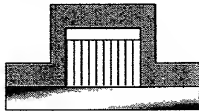
Figure 4



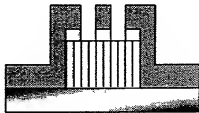
(a) Sacrificial layer deposition



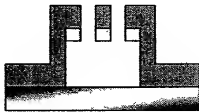
(b) Lithography and etching



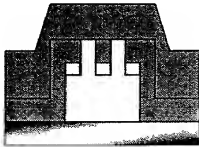
(c) Wall /capping layer deposition



(d) Wet etchant access window etching  
(Holes occur as needed in top or sides for effective etching)



(e) Sacrificial layer etching



(f) Window filling



Substrate



Air (empty space)



Column/void silicon



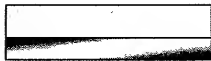
Cap layer



Wall material

Figure 5

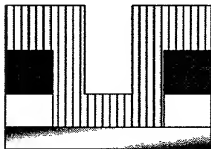
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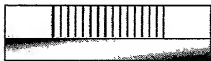
(a) Base layer deposition



(b) Lithography and base layer etching



(c) Sacrificial layer deposition



(d) Lift-off



(e) Capping layer deposition



(f) Wet etchant access window etching  
(Holes occur as needed in top or sides for effective etching)



(g) Sacrificial layer etching



(h) Window filling

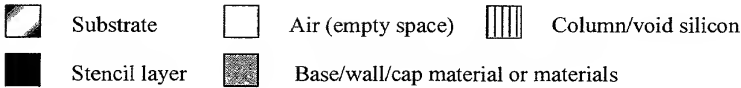
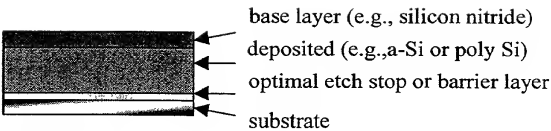


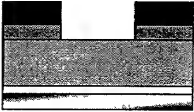
Figure 6

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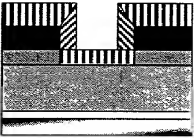
(a) Base layer deposition



(b) Lithography and  
base layer etching



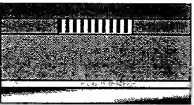
(c) Sacrificial layer  
deposition



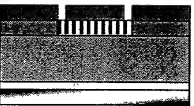
(d) Lift-off



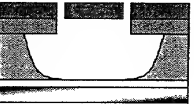
(e) Capping layer deposition



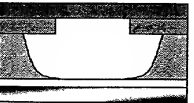
(f) Etchant access window  
etching



(g) Sacrificial layer etching  
and trench creation



(h) Window filling



### Figure 7

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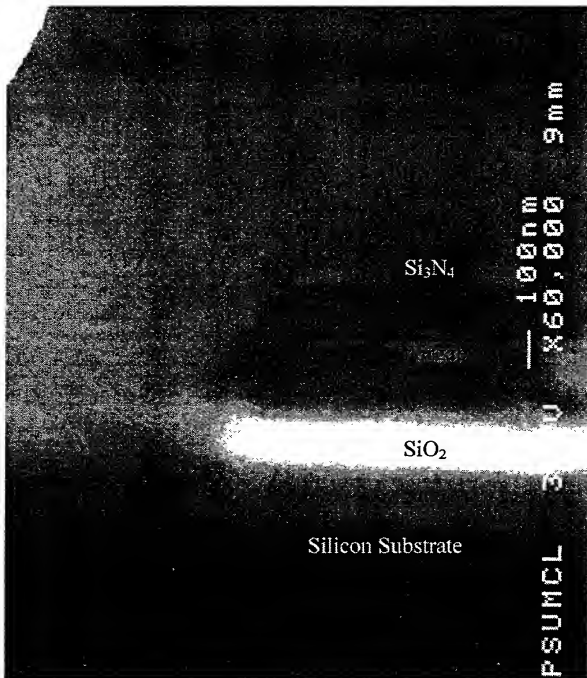
[illegible]

Figure 8

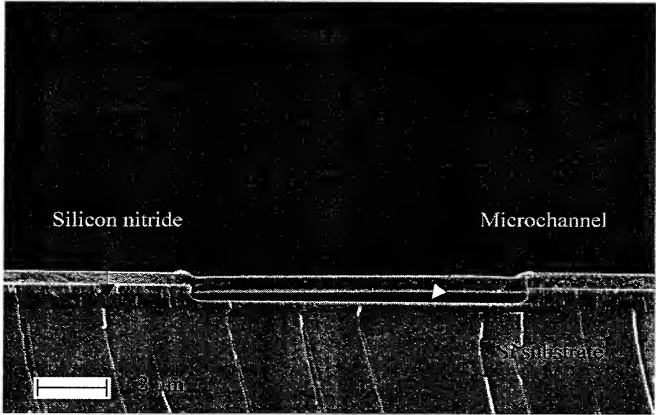
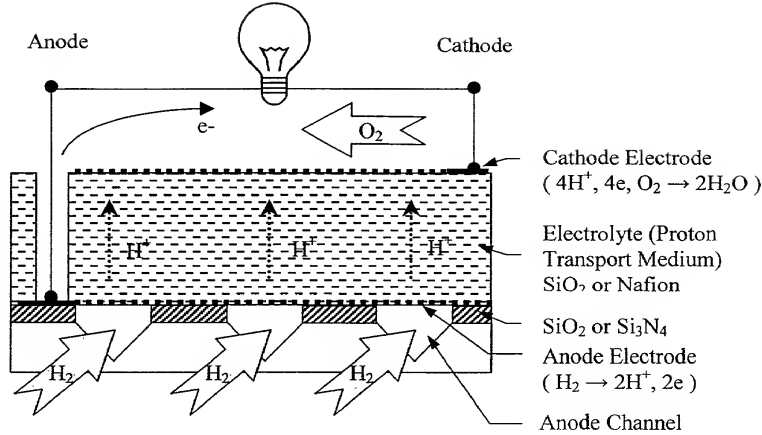




Figure 9

(a)



(b)

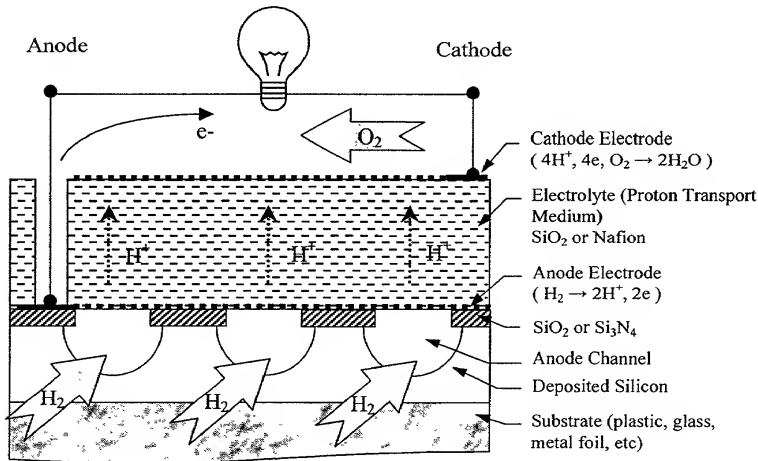


Figure 10

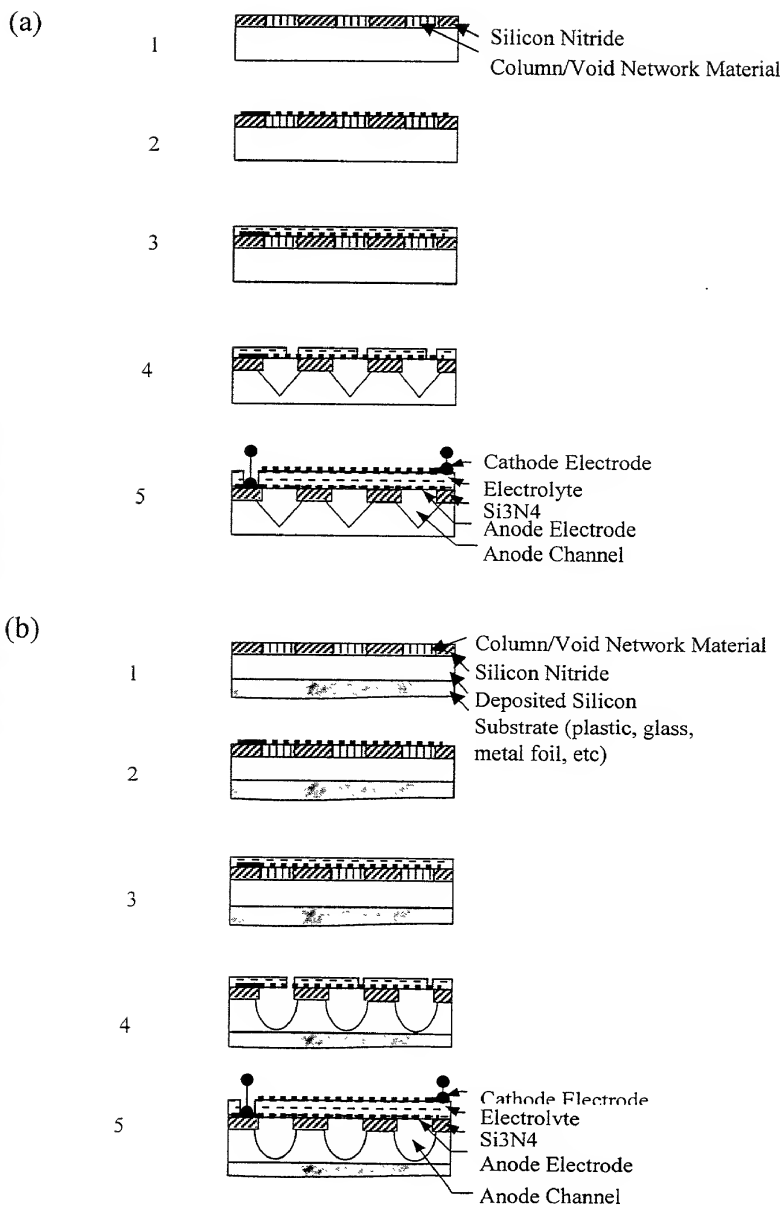


Figure 11

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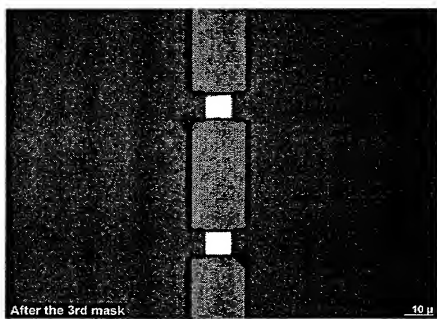
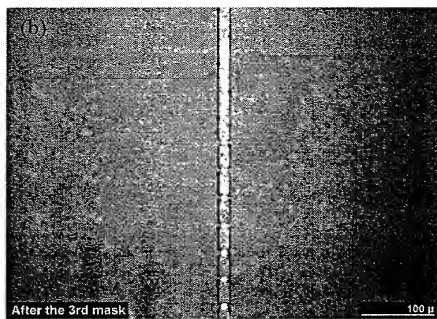
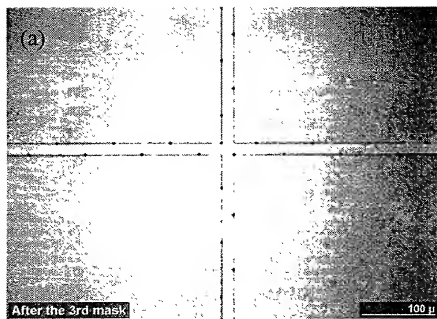


Figure 12

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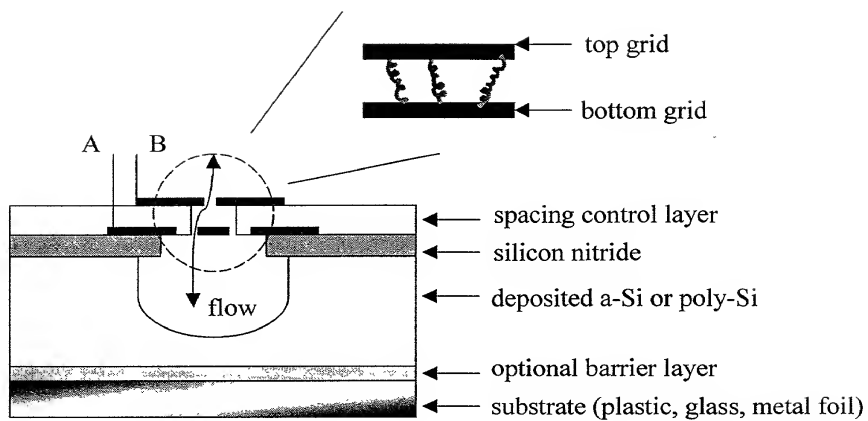


Figure 13

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(a) Cr/Au deposition



(b) Lithography and etching



(c) Column/void network material deposition



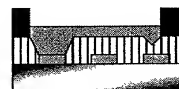
(d) Contact tip etching



(e) Beam support etching



(f) Lithography



(g) Au deposition



(h) Column/void network material etching

Figure 13